

DETAILED ACTION

This office action is in reply to an amendment filed on June 25, 2008. Claims 1, 15 and 16 have been amended. Claims 1-25 are pending.

Response to Arguments

Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearce US 5,657,445 in view of Gibbons et al. US 6,243,809 B1 (hereinafter Gibbons).

As per claim 1, Pearce teaches a data processing system comprising:

a processor (figure 2, units 105, 110),

a non-volatile storage medium including configuration data that describes a configuration of the non-volatile storage medium (i.e., hard disk drive, 180, that includes critical areas such as, master boot record, column 4, lines 46-55),

a controller for managing data exchanges with the non-volatile storage medium and for invoking an uninterruptible software routine (i.e., System management mode Code) in

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response to first software attempting to access the configuration data (i.e., invoking System management mode (SMM), in response to an instruction trying to access the hard disk drive and/or critical areas of hard disk drive, column 6, lines 46-lines 64);

the uninterruptible software routine having code for determining whether the first software is authorized to access the configuration data and for allowing or preventing any such access according to the determination [column 6, line 62-column 7, line 33].

Pearce is silent on authorizing access to all portions of the non-volatile storage medium and for allowing or preventing any read operation on the non-volatile storage medium according to the determination. In the same field of endeavor, Gibbons teaches an uninterruptible software authorizing access to all portions of a non-volatile storage medium and for allowing or preventing any read operation on the non-volatile storage medium according to a determination [column 6, lines 48 - column 7, line 9]. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to employ the teachings of Gibbons within the system of Pearce in order to enhance the security of the system.

As per claim 15, Pearce teaches a system comprising:

a processor (figure 2, units 105, 110),

a first non-volatile storage (figure 2, flash memory 124) medium having first (figure 2, system BIOS, 255) and second firmware (figure 2, SMM code 250) and

a second non-volatile storage medium for storing configuration data that describes a configuration of the second non-volatile storage medium (i.e., hard disk drive, 180, that includes critical areas such as, master boot record, column 4, lines 46-55);

the processor having a first mode of operation for executing the first firmware and a second mode of operation for executing the second firmware (i.e., in system management mode or regular mode, column 5, lines 62-column 6, line 5);

the processor being arranged to enter the second mode of operation and execute the second firmware in response to the first firmware, executing in the first mode of operation, at least attempting to access the configuration data (i.e., invoking System management mode (SMM), in response to a BIOS instruction tries to access the hard disk drive and/or critical areas of hard disk drive, column 6, lines 46-lines 64);

wherein the second firmware when executed by the processor, determines whether the first software is authorized to access the configuration data [column 6, line 62-column 7, line 33].

Pearce is silent on authorizing access to all portions of the non-volatile storage medium and for allowing or preventing any read operation on the non-volatile storage medium according to the determination. In the same field of endeavor, Gibbons teaches an uninterruptible software authorizing access to all portions of a non-volatile storage medium and for allowing or preventing any read operation on the non-volatile storage medium according to a determination [column 6, lines 48 - column 7, line 9]. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to employ the teachings of Gibbons within the system of Pearce in order to enhance the security of the system.

As per claims 16, 21 and 22, Pearce teaches a method of controlling a data processing system, the system comprising

a processor, first non-volatile storage storing first software and an uninterruptible software routine for executing within respective first and second modes of operation of the

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processor (figure 2, flash memory 124, system BIOS, 255, SMM code 250, executing in system management mode or regular mode, column 5, lines 62-column 6, line 5); and

a second non-volatile storage medium storing configuration data that describes a configuration of the second non-volatile storage medium (i.e., hard disk drive, 180, that includes critical areas such as, master boot record, column 4, lines 46-55);

the first software having associated identification data [column 6, lines 47-50];

the method comprising the steps of: executing the uninterruptible software routine, in the second mode of operation of the processor, in response to the first software, executing within the first mode of operation of the processor, at least attempting to access the configuration data (i.e., invoking System management mode (SMM), in response to a BIOS instruction tries to access the hard disk drive and/or critical areas of hard disk drive, column 6, lines 46-lines 64);

determining whether the first software is authorized to access the configuration data [column 6, line 62-column 7, line 33]; and

controlling access to the configuration data according to that determination [column 6, line 62-column 7, line 33].

Pearce is silent on authorizing access to all portions of the non-volatile storage medium and for allowing or preventing any read operation on the non-volatile storage medium according to the determination. In the same field of endeavor, Gibbons teaches an uninterruptible software authorizing access to all portions of a non-volatile storage medium and for allowing or preventing any read operation on the non-volatile storage medium according to a determination [column 6, lines 48 - column 7, line 9]. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to employ the teachings of Gibbons within the system of Pearce in order to enhance the security of the system.

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As per claim 2, Pearce further teaches the method in which the first software is initialization software for initializing the data processing system [column 5, lines 50-64].

As per claim 3, Pearce further teaches the system wherein the configuration data comprises at least a portion of first data included in data structure of the non-volatile storage medium [figure 1].

As per claim 4, Pearce further teaches the system wherein the data structure includes a Master Boot Record [figure 1].

As per claims 5 and 6, Pearce further teaches the system wherein the configuration data comprises executable code, which includes Master Boot Code [column 4, lines 45-55].

As per claim 12, Pearce further teaches the system wherein the controller is adapted to in response to any attempt by the first software to access the configuration data, trap said attempt and send an SMI interrupt to the processor, and the uninterruptible software routine includes a system management mode code executable only within a constrained or protected operating environment for disabling the controller's trap in response to a determination that the first software is authorized to access the configuration data [column 6, line 46-column 7, line 32].

As per claim 13, Pearce further teaches the system further comprising an operating system stored in the non-volatile storage medium, and an operating system loader for loading the operating system for the data processing system, and wherein the configuration data is

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arranged to provide access to the operating system loader to load the operating system from the non-volatile storage medium [figure 1 and column 6, lines 46-59].

As per claim 14, Pearce further teaches the system wherein the first software is BIOS code [column 5, lines 62-65 and column 6, lines 17-29].

As per claims 23, Pearce further teaches the system wherein the uninterruptible software has a code for hanging the data processing system in response to a determination that the first software is not authorized to access the configuration data [column 6, line 62-column 7, line 33].

As per claim 24, Pearce further teaches the system wherein the controller is an I/O controller hub [figure 2].

Claims 7-11, 17-20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pearce US 5,657,445 in view of Gibbons et al. US 6,243,809 B1 and further in view of Wildgrube et al. US 6,249,872 B1 (hereinafter Wildgrube).

As per claims 7-11, 17-20 and 25, Pearce teaches the system as indicated above. Pearce further teaches determining whether the first software is authorized to access the configuration data and for allowing or preventing any such access according to the determination [column 6, line 62-column 7, line 33]. Wildgrube further teaches encrypting/decrypting configuration data, and decrypting configuration data in response to determination that a first software is authorized to access the configuration data, and comparing

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digital signature to determine the first software is authorized to access the configuration data [column 2, line 35-column 3, line 10]. It would have been obvious to one having ordinary skill in the art at the time of applicant's invention to employ the teachings of Wildgrube within the system of Pearce and Gibbons in order to enhance the security of the system.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BEEMNET W. DADA whose telephone number is (571)272-3847. The examiner can normally be reached on Monday - Friday (9:00 am - 5:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim Y. Vu can be reached on (571) 272-3859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Beemnet W Dada/
Examiner, Art Unit 2435

October 11, 2008
/KimYen Vu/
Supervisory Patent Examiner, Art Unit 2435